Potent questions about cannabis and mental health

Published Online
February 16, 2015
http://dx.doi.org/10.1016/S2215-0366(14)00130-8

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The association between cannabis use and psychosis is well established, with estimated odds ratios (ORs) of 1·4 for lifetime exposure and 2·1 for frequent use according to longitudinal population-based cohorts.[1] These results seem to show a dose-response effect,[1] but have not taken account of a key component of cannabis—its potency. In *The Lancet Psychiatry*, Marta Di Forti and colleagues[2] address this gap with a case-control analysis of first-episode psychosis. Strengths of the study include the large sample of patients (n=410), an impressive response rate for participation (461 [76%] of 606 individuals) and appropriate control for confounding by gender, ethnicity, education, employment status, and other drug use.

Consistent with previous reports,[1] patients with first-episode psychosis were more likely than controls to have used cannabis on a daily basis. More importantly, however, this effect was strongly dependent on the type of cannabis used. The investigators identified no associations between low-potency (hash) cannabis and psychosis, even with daily use. By contrast, the risk increased substantially for high-potency (skunk) cannabis, with ORs of 1·9 (95% CI 1·08–2·62) for use less than once per week, 2·7 (1·4–9·1) for use at weekends, and 5·4 (2·8–11·3) for use every day.

These findings make a notable contribution to the existing literature on cannabis and psychosis. Previous studies[1] reporting a stronger association in frequent users, have been unable to separate heaviness of use from some of its correlates. For example, as frequency of cannabis use rises, so does the regularity with which an individual carries out a stigmatised and widely illegal activity, which has important social and developmental implications. Simultaneously, time spent on other recreational activities, education, or work will typically decrease. Furthermore, cannabis is almost always smoked with tobacco in many countries, including the UK. This fact makes separation of the effects of tobacco co-administration from those of cannabis itself challenging.[3] These factors cannot explain the differential associations between cannabis type and psychosis reported by Di Forti and colleagues,[2] if skunk and hash are assumed to be used by similar populations in a similar manner.

Replication of these findings in longitudinal cohorts will be important. Ideally these studies should biologically quantify cannabinoid exposure in addition to self-reported use. These measures could account for individual patterns of use, such as titrating (using less cannabis) as potency increases.[4] Skunk is not only characterised by high concentrations of Δ-9-tetrahydrocannabinol (THC; about 15%), but also by scarcity of cannabidiol (<0·1%). By contrast, hash usually contains roughly 5% THC and about 4% cannabidiol.[5] Examination of cumulative exposure to these cannabinoids could determine whether the results reported by Di Forti and colleagues might be explained by propsychotic effects of THC,[6] anti-psychotic effects of cannabidiol,[7] or interactions between the two.[8,9] Identification of the contribution of different cannabinoids might have implications for other mental health problems linked to cannabis, such as addiction.[10]

Di Forti and colleagues correctly state that causality cannot be established on the basis of their study, and this consideration is important. If causality exists, they calculate that 24% of first-episode cases in their South London catchment area might be attributable to high potency cannabis. This figure is higher than their estimate for daily use in general (19%). If this interpretation is correct, cannabis potency is more important than

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frequency of use in prediction of risk of psychosis, and could have a substantial effect on public health.

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I declare no competing interests.

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Suicide, unemployment, and the effect of economic recession

Peter Bohler/Corbis

Published Online
February 11, 2015
http://dx.doi.org/10.1016/S2215-0366(14)00129-1

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WHO recently estimated that 804 000 people worldwide died by suicide during 2012.[1] Suicide prevention experts have historically focused their attention on elevated risk during times of economic downturn. For instance, Stack and Haas estimated that more than 900 suicides in the USA were attributable to the sharp rise in redundancies that occurred in 1981–82 during the early years of the Reagan administration, and which pushed the national unemployment rate up to its highest level since the interwar Great Depression era.[2] More recently, adverse effects linked with the 2008 economic crisis have also been reported. For example, Barr and colleagues reported that geographical regions in England with the greatest increases in levels of unemployment have also seen the largest rises in suicide risk, especially so for men.[3]

In *The Lancet Psychiatry*, Carlos Nordt and colleagues[4] report on their longitudinal analyses of suicide risk across 63 countries during years 2000–11. This paper builds on previous work examining data from 54 countries that was published from the same WHO mortality dataset.[5] What is novel about the current paper is its longitudinal modelling of the international effect of unemployment at population level across a period that encompasses economic stability as well as the crisis and its aftermath. This approach has enabled the authors to estimate the number of excess suicides attributable to unemployment per se, as well as the number specifically attributable to the recession and its wake. The nine-fold difference between these two values is striking. It implies that national and international suicide prevention strategies need to target the ill effects associated with unemployment in times of economic stability as well as during recession. The paper also highlights the fact that not all job losses necessarily have an equivalent effect, because the effect on suicide risk could be greatest in settings where being without work is fairly unusual.

Nordt and colleagues have correctly highlighted missing information from large and populous countries such as China and India, as well as most of the African continent, as the key limitation of the WHO mortality dataset that they examined.[4] Another major restriction, one the authors did not address, is that examining fluctuating unemployment levels encompasses merely a fraction of complete societal exposure to the effects of economic recession and subsequent periods of public spending cuts and fiscal austerity.[6] Thus, many affected individuals who remain in work during these hard times encounter serious psychological stressors due to pernicious economic strains other than unemployment, including falling income, 'zero-hour' contracting, job insecurity, bankruptcy, debt, and home repossession.[7] Caution should therefore be exercised when considering estimated numbers of additional suicide cases attributable to global economic downturn,